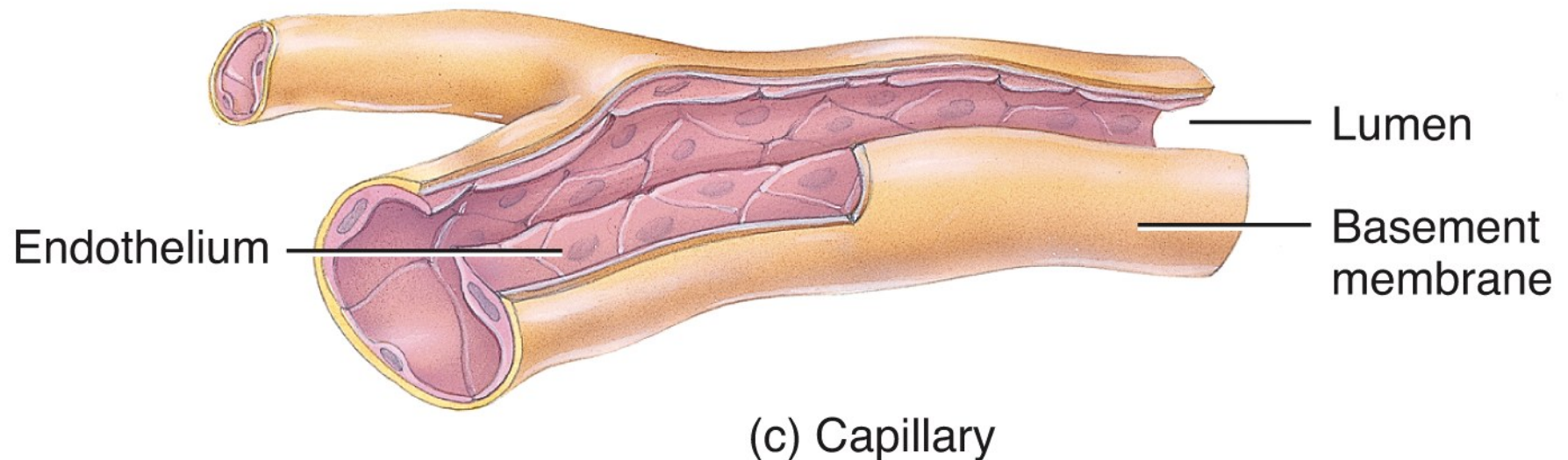


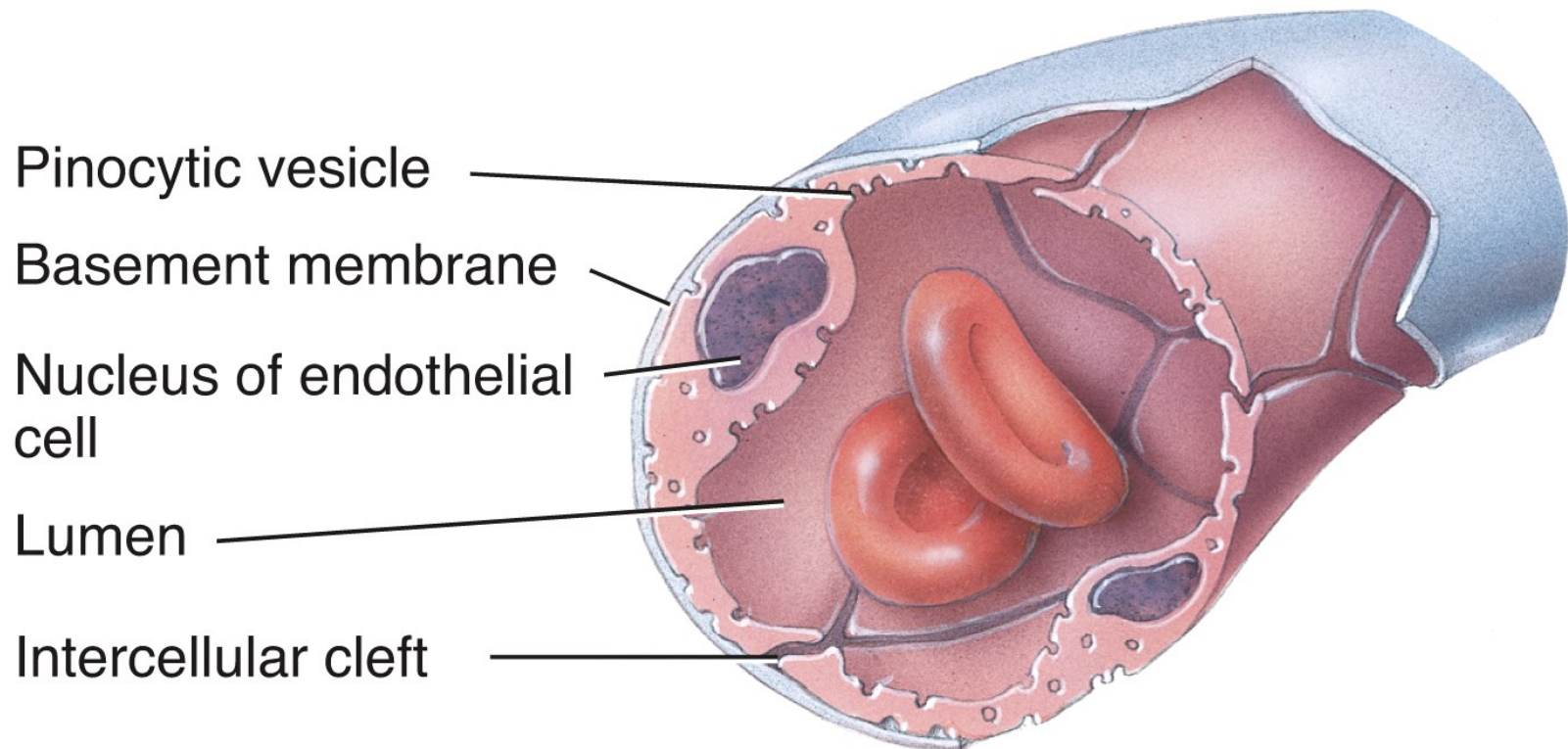
Vessel Structure and Function – A Focus on Capillaries

- A. The Walls of a Capillary are Thin
1. Tunica interna = simple squamous epithelial tissue
 2. Basement Membrane
 3. Remember Fick's Law of Definition



Vessel Structure and Function – A Focus on Capillaries

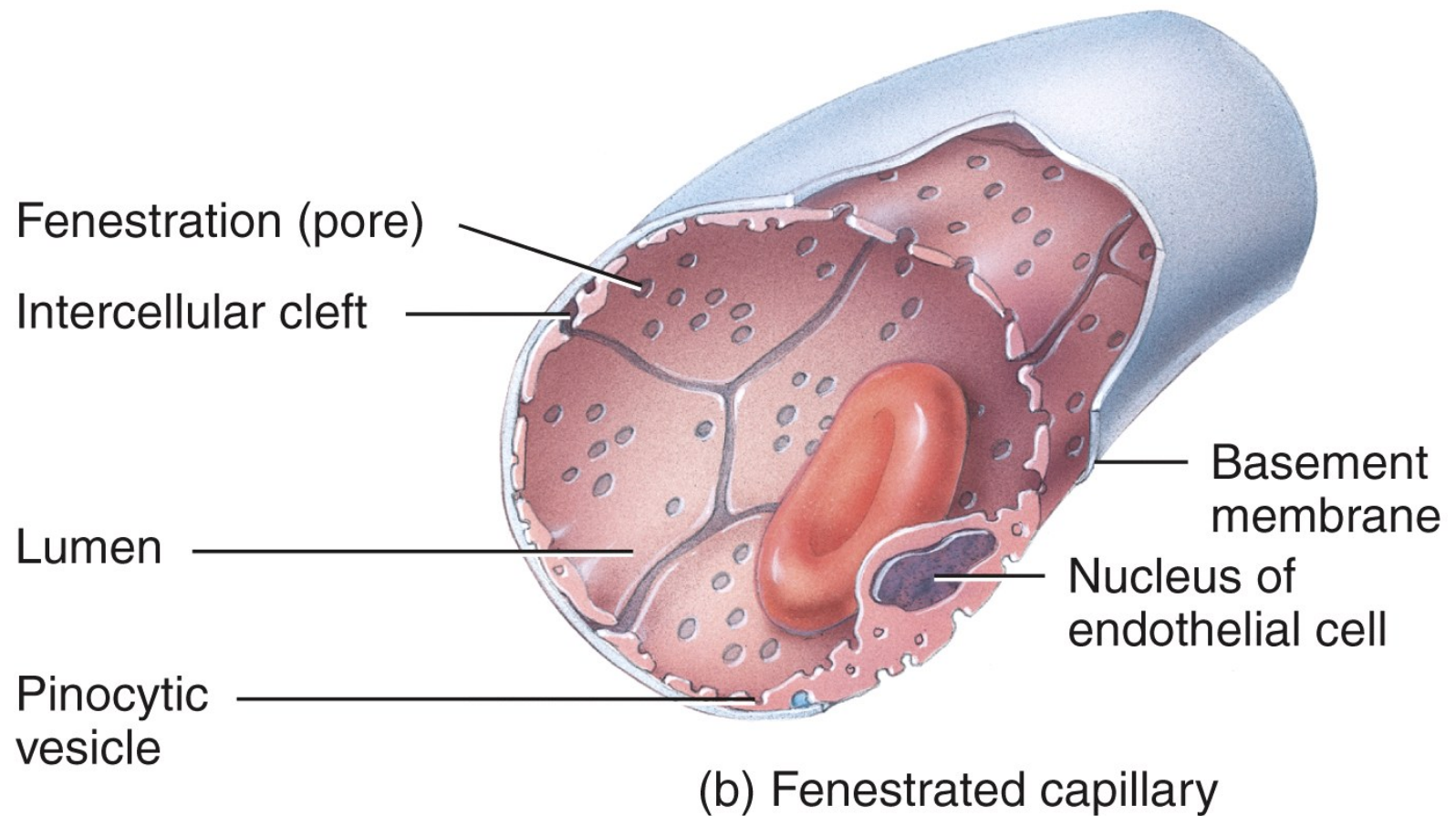
- B. 3 Types of Capillaries
 - 1. Continuous Capillaries



(a) Continuous capillary formed by endothelial cells

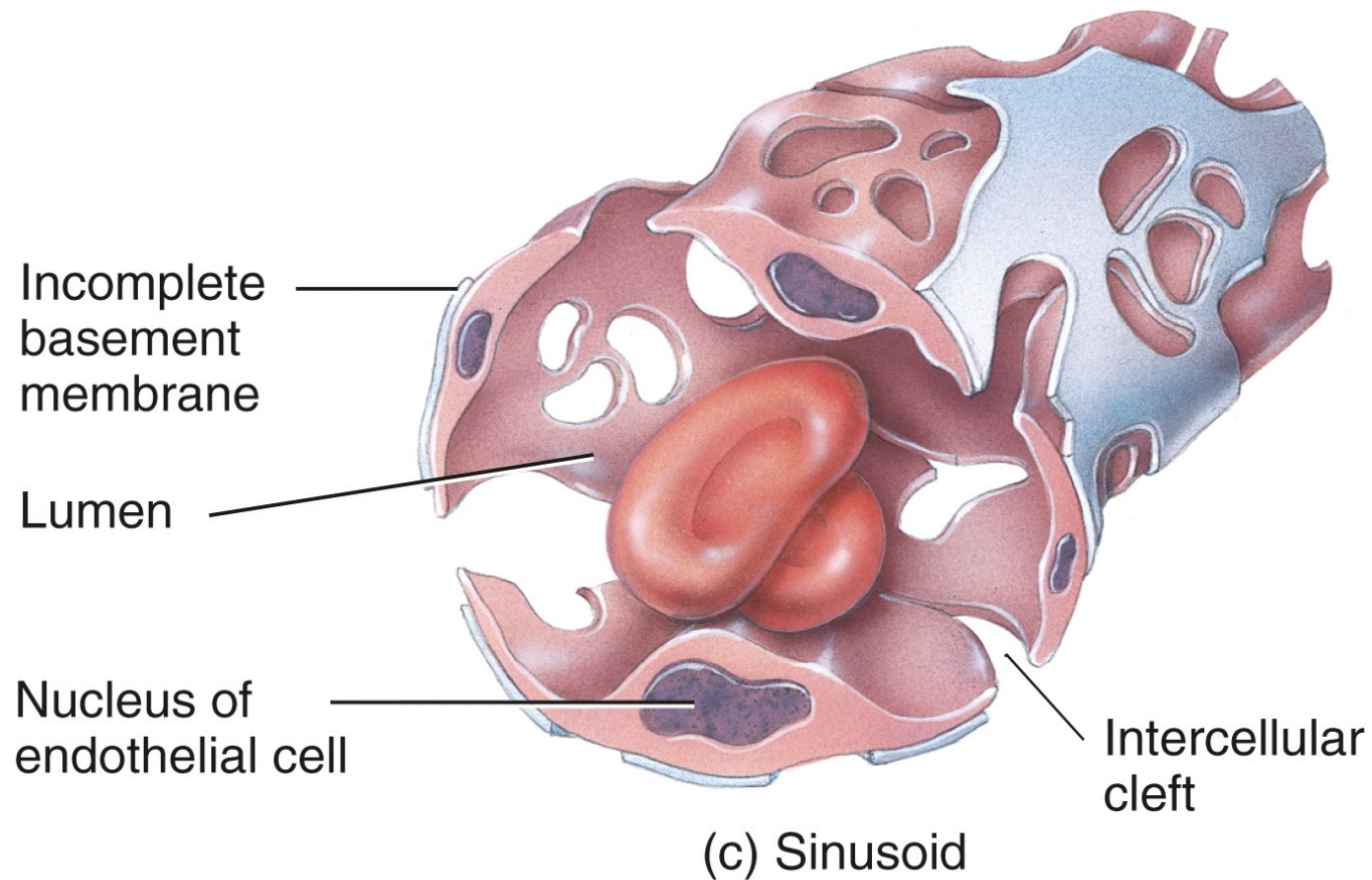
Vessel Structure and Function – A Focus on Capillaries

- B. 3 Types of Capillaries
 - 2. Fenestrated Capillaries



Vessel Structure and Function – A Focus on Capillaries

- B. 3 Types of Capillaries
 - 3. Sinusoid Capillaries

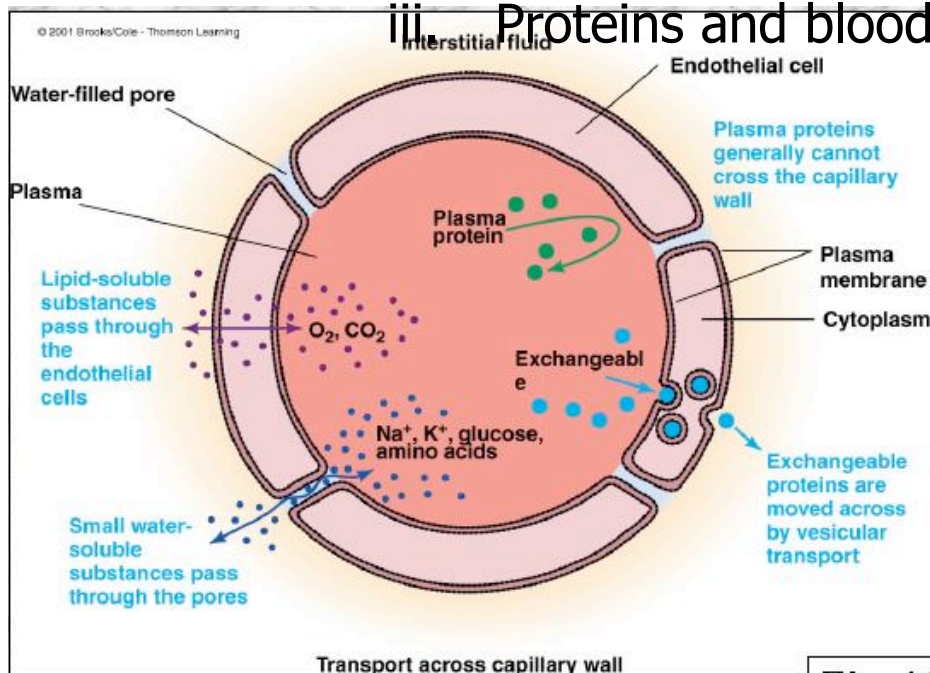


Vessel Structure and Function – A Focus on Capillaries

C. Exchange Across the Capillary Wall

1. Diffusion

- a. Definition – passive movement from higher concentration to lower concentration
- b. Items that diffuse
 - i. Water-soluble substances via clefts or fenestrations
 - ii. Gases through lipid bi-layer
 - iii. Proteins and blood cells via sinusoids



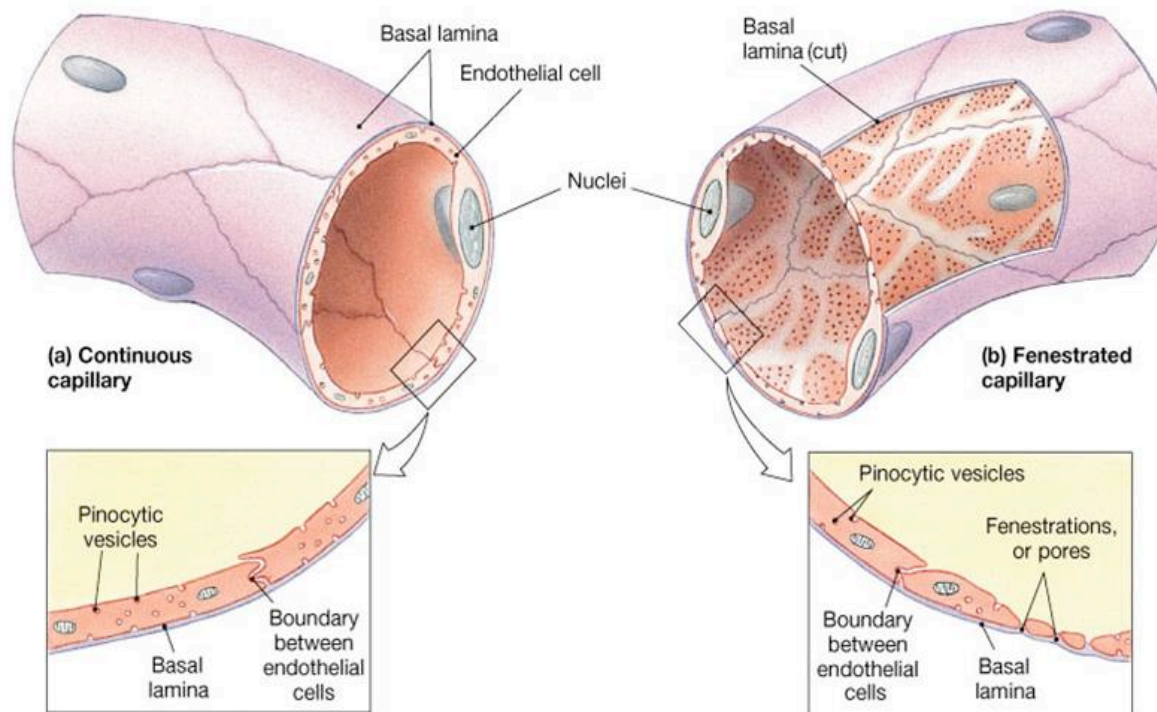
Modified from:
<http://www.as.wvu.edu/~rbrundage/chapter10b/img004.jpg>

Vessel Structure and Function – A Focus on Capillaries

C. Exchange Across the Capillary Wall

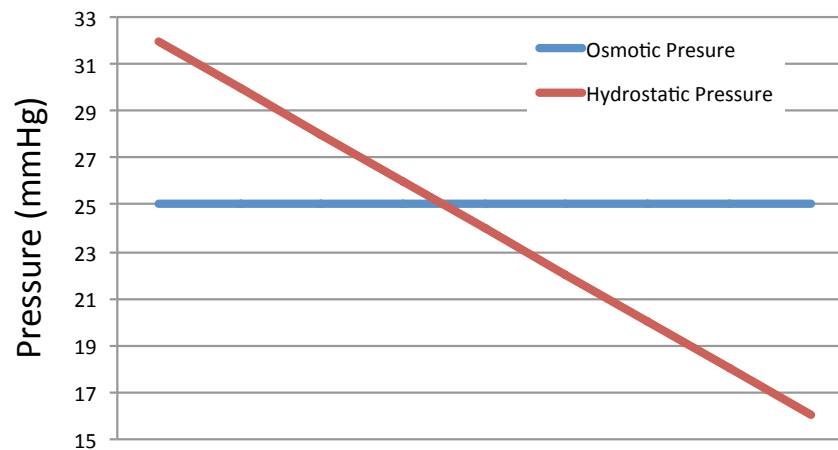
2. Transcytosis

- a. Definition – substances cross the membrane in bound vesicles
- b. Large, lipid-insoluble substances (i.e. insulin)

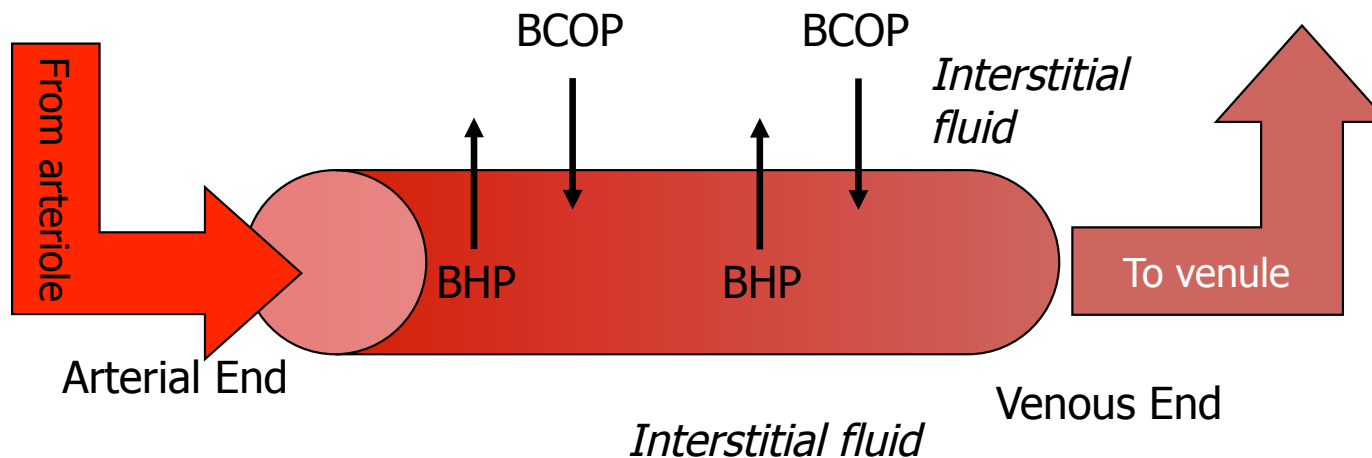


Vessel Structure and Function – A Focus on Capillaries

C. Exchange Across the Capillary Wall 3. Bulk Flow

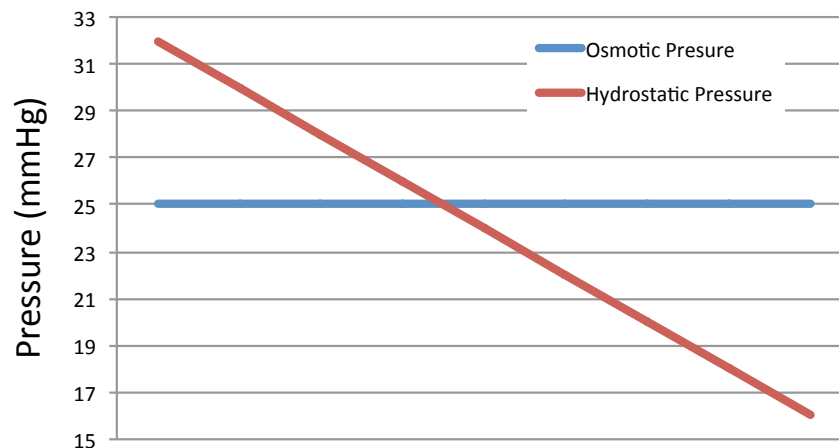


$$\text{NFP} = \text{BHP} - \text{BCOP}$$



Vessel Structure and Function – A Focus on Capillaries

C. Exchange Across the Capillary Wall 3. Bulk Flow



@ arterial end NFP =
 $32 - 25 = +7$ mm Hg
Filtration

@ venous end NFP =
 $15 - 25 = -10$ mm Hg
Reabsorption

